# UNITED STATES PATENT AND TRADEMARK OFFICE

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/835,310 | 04/16/2001 | Kai Lu | | 5695 |

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| EXAMINER |
|---|
| BARNES, CRYSTAL J |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2121 | |

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | Application No. | Applicant(s) |
| **Office Action Summary** | 09/835,310 | LU, KAI |
| | Examiner | Art Unit | |
| | Crystal J. Barnes | 2121 | |

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *16 April 2001*.

2a)☐ This action is **FINAL.**    2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-9* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 April 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *  c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

## DETAILED ACTION

1.     The following is an initial Office Action upon examination of the above-

identified application on the merits.  Claims 1-9 are pending in this application.

### *Drawings*

2.     Figures 1-7 should be designated by a legend such as --Prior Art-- because only

that which is old is illustrated.  See MPEP § 608.02(g).  Corrected drawings in

compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid

abandonment of the application. The replacement sheet(s) should be labeled

"Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to

obstruct any portion of the drawing figures. If the changes are not accepted by the

examiner, the applicant will be notified and informed of any required corrective

action in the next Office action. The objection to the drawings will not be held in

abeyance.

### *Specification*

3.     The abstract of the disclosure is objected to because of undue length.

Correction is required.  See MPEP § 608.01(b).

4.      Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

5.      The disclosure is objected to because of the following informalities: a utility application should include certain sections in a particular order. Appropriate correction is required.

6.      The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

### Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the section heading may be omitted or the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.

(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.

(d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)

(e) BACKGROUND OF THE INVENTION.
  (1) Field of the Invention.
  (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.

(f) BRIEF SUMMARY OF THE INVENTION.

(g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

(h) DETAILED DESCRIPTION OF THE INVENTION.

(i) CLAIM OR CLAIMS (commencing on a separate sheet).

(j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

7.    A substitute specification including the claims is required pursuant to 37 CFR 1.125(a) because the number of the amendments render it difficult to arrange the papers for printing or copying.

A substitute specification must not contain new matter. The substitute specification must be submitted with markings showing all the changes relative to the immediate prior version of the specification of record. The text of any added

subject matter must be shown by underlining the added text. The text of any deleted

matter must be shown by strike-through except that double brackets placed before

and after the deleted characters may be used to show deletion of five or fewer

consecutive characters. The text of any deleted subject matter must be shown by

being placed within double brackets if strike-through cannot be easily perceived. An

accompanying clean version (without markings) and a statement that the substitute

specification contains no new matter must also be supplied. Numbering the

paragraphs of the specification of record is not considered a change that must be

shown.

### *Claim Objections*

8.      Claims 1-9 are objected to because of the following informalities:

   a.      each claim should consist of only one sentence.

      i.      Capital letters should be changed to lowercase unless they begin

the claim/sentence.

      ii.      After "as follows", consider using a colon instead of a period.

      iii.      Consider using commas and/or semicolons instead of periods to

separate the limitations of the claims.

b.      change "packet supposes to carry" on lines 3-4 of claims 2 and 7 to

"packet carries"

c.      the term "we" should be removed from the claims.

iv.      Consider changing "we can recover the lost information" on lines 5-

6 of claim 2 to "the lost information can be recovered"

v.      Consider changing "we drop all the even-number packets." on lines

2-3 of claim 3 to "all the even-number packets are dropped."

vi.      Consider changing "we drop all the odd-number packets." on lines

2-3 of claim 4 to "all the odd-number packets are dropped."

vii.      Consider changing "we use the required data and save the

redundant data." on lines 2-3 of claims 5 and 9 to "the required data is

used and the redundant data is saved."

viii.      Consider changing "we use the saved redundant data" on line 3 of

claim 5 to "the saved redundant data is used".

ix.      Consider changing "we discard the saved redundant data." on line 4

of claim 5 to "the saved redundant data is discarded."

x.      Consider changing "we can recover the lost data from the

redundant data of the received packet." on lines 5-6 of claim 7 to "the

lost data can be recovered from the redundant data of the received

packet."

xi.     Consider changing "we keep one packet and drop N packets that

follow the kept packet," on lines 2-3 of claim 8 to "one packet is kept and

N packets that follow the kept packet are dropped".

xii.     Consider changing "we will use the first i parts of the redundant

data of the received packet" on lines 3-4 of claim 9 to "the first i parts

of the redundant data of the received packet will be used".

xiii.     Consider changing "we only use the required data and discard the

saved redundant data." on line 5 of claim 5 to "only the required data is

used and the saved redundant data is discarded."

Appropriate correction is required.

9.     Claim 2-5 and 7-9 recite "said the" in the first line of each claim.  Using only

"said" demonstrates sufficient antecedent basis for a limitation in a claim.


## Claim Rejections - 35 USC § 103

10.     The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as
> set forth in section 102 of this title, if the differences between the subject matter sought to be

patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11.     Claims 1, 2, 5-7 and 9 are rejected under 35 U.S.C. 103(a) as being

unpatentable over USPN 6,434,606 B1 to Borella et al. in view of US Pub. No.

2002/0095498 A1 to Chanda et al.

As per claims 1 and 6, the Borella et al. reference discloses a method for

transmitting the time-critical data over Ethernet/packet-switched networks; the

method comprising: a scheme of carrying the redundant data (see column 7 lines 50-

53, "frame n-1, frame n-2") in each packet ("data packet n"), which can be used to

recover the lost information (see column 7 lines 54-57, "frame n-1, frame n-2") when

a packet ("data packets n-1 and n-2") is dropped; a strategy of actively and selectively

dropping packets when congestion happens to resolve the traffic congestion, the lost

information ("frame n-1, frame n-2") will be able to be recovered from the redundant

data ("frame n-1, frame n-2"); and a means of recovering the lost information ("frame

n-1, frame n-2") when packet-drop ("data packets n-1 and n-2") happens, so that the

quality of transmission will not be affected.

The Borella et al. reference does not expressly disclose a strategy of actively

and selectively dropping packets when congestion happens to resolve the traffic

congestion.

The Chanda et al. reference discloses

(see page 3 [0034], "... traffic regulator 210 regulates data flow ... by determining which packets to drop is any.")

(see page 3 [0035], "Interface 226 receives packets ... and either transmits or drops the packets received ...")

(see page 4 [0044], "... logic checks to see if there is a congestion at the traffic shaper ... If congestion exists, the packet is temporarily stored in the interface ...")

(see page 5 [0045], " ... logic 230 decides which packet to drop.")

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the real time communication buffer management device taught by the Borella et al. reference with the high speed data transmission technologies taught by the Chanda et al. reference to provide fast, flexible, efficient network connections.

One of ordinary skill in the art would have been motivated to provide fast, flexible, efficient network connections to provide improved services to users.

As per claim 2, the Borella et al. reference discloses said scheme of carrying the redundant data ("frame n-1, frame n-2") in each packet ("data packet n") can be done as follows: the data ("frame n, frame n-1, frame n-2") carried in each packet

("data packet n") is composed of two parts, the required data ("frame n") and the

redundant data ("frame n-1, frame n-2"); the required data ("frame n") is the data

that the packet ("data packet n") carries in the case without redundant data and the

redundant data ("frame n-1, frame n-2") is the required data ("frame n-1, frame n-2")

of the next packet ("data packets n-1 and n-2") so that if the next packet ("data

packets n-1 and n-2") is dropped, the lost information ("frame n-1, frame n-2") can be

recovered from the redundant data ("frame n-1, frame n-2") of this packet ("data

packet n").

As per claim 5, the Borella et al. reference discloses said means of recovering

the lost data ("frame n-1, frame n-2") when packet-drop ("data packets n-1 and n-2")

happens can be accomplished as follows: when a packet ("data packet n") arrives, the

required data ("frame n") is used and the redundant data ("frame n-1, frame n-2") is

saved (see column 11 lines 34-36, "buffered"); if the next packet ("data packets n-1

and n-2") is dropped, the saved redundant data ("frame n-1, frame n-2") is used as if

the next packet ("data packets n-1 and n-2") was received; if the next packet ("data

packets n-1 and n-2") arrives, the saved redundant data ("frame n-1, frame n-2") is

discarded (see column 11 lines 34-36, "discarded").

As per claim 7, the Borella et al. reference discloses said the scheme of

carrying the redundant data ("frame n-1, frame n-2") in each packet ("data packet n")

can be done as follows: the data ("frame n, frame n-1, frame n-2") carried in each

packet ("data packet n") is composed of two parts: the required data ("frame n") and

the redundant data ("frame n-1, frame n-2"), the required data ("frame n") is the

data that the packet ("data packet n") carries in the case without redundant data,

the redundant data ("frame n-1, frame n-2") is the required data ("frame n-1, frame

n-2") of the next N packets ("data packets n-1 and n-2"), where N = 1, 2, 3 ...., so that

if any of the next N packets ("data packets n-1 and n-2") are dropped we can recover

the lost data ("frame n-1, frame n-2") from the redundant data ("frame n-1, frame n-

2") of the received packet ("data packet n").

   As per claim 9, the Borella et al. reference discloses said means of recovering

the lost data ("frame n-1, frame n-2") when packet-drop ("data packets n-1 and n-2")

happens can be accomplished as follows: when a packet ("data packet n") arrives, the

required data ("frame n") is used and the redundant data ("frame n-1, frame n-2") is

saved (see column 11 lines 34-36, "buffered"); if the next i packets ("data packets n-1

and n-2") are dropped, the first i parts of the redundant data ("frame n-1, frame n-

2") of the received packet ("data packet n") will be used to recover the lost data

("frame n-1, frame n-2"), where i = 1, 2, ... N; if no packet is dropped, only the

required data ("frame n") is used and the saved redundant data ("frame n-1, frame n-

2") is discarded (see column 11 lines 34-36, "discarded").

12.     Claims 3, 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable

over USPN 6,434,606 B1 to Borella et al. in view of US Pub. No. 2002/0095498 A1 to

Chanda et al. as applied to claims 1, 2, 5-7 and 9 above, and further in view of logical

reasoning.

As per claim 3, the Borella et al. and the Chanda et al. references do not

expressly disclose said strategy of actively and selectively dropping packets when

congestion happens can be done as follows: when congestion happens, we drop all the

even-number packets, all the lost data can be recovered from all the odd-number

packets' redundant data.

As per claim 4, the Borella et al. and the Chanda et al. references do not

expressly disclose said strategy of actively and selectively dropping packets when

congestion happens can be done as follows: when congestion happens, we drop all the

odd-number packets, all the lost data can be recovered from all the even-number

packets' redundant data.

As per claim 8, the Borella et al. and the Chanda et al. references do not

expressly disclose said the strategy of actively and selectively dropping packets when

congestion happens can be done as follows: when congestion happens, we keep one

packet and drop N packets that follow the kept packet, where N= 1, 2, 3 ...., all the

lost data can be recovered from the redundant data of the kept packet.

However, it would have been logical for one of ordinary skill in the art to modify the criteria for packet dropping in order to relieve traffic congestion in a network and compensate for that packet loss by data replication or redundancy without increasing the required bandwidth.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the criteria for packet-dropping taught by both the Borella et al. and the Chanda et al. references by utilizing any user specified priority scheme in order to relieve traffic congestion in a network.

One of ordinary skill in the art would have been motivated to apply any user specified priority scheme to control packet dropping in order to relieve traffic congestion in a network and compensate for the packet loss by data replication or redundancy without increasing the required bandwidth.

## Conclusion

13.     The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following references are cited to further show the state of the art with respect to high-speed data transmission in general:

USPN 5,883,891 to Williams et al.

USPN 6,636,530 B1 to O'Brien

US Pub. No. 2002/0061018 A1 to Chien

14.    An examination of this application reveals that applicant is unfamiliar with patent prosecution procedure. While an inventor may prosecute the application, lack of skill in this field usually acts as a liability in affording the maximum protection for the invention disclosed. Applicant is advised to secure the services of a registered patent attorney or agent to prosecute the application, since the value of a patent is largely dependent upon skilled preparation and prosecution. The Office cannot aid in selecting an attorney or agent.
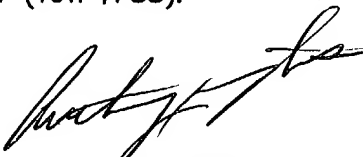
Applicant is advised of the availability of the publication "Attorneys and Agents Registered to Practice Before the U.S. Patent and Trademark Office." This publication is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Crystal J. Barnes whose telephone number is 703.306.5448. The examiner can normally be reached on Monday-Friday alternate Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Anthony Knight can be reached on 703.308.3179. The fax

phone number for the organization where this application or proceeding is assigned is

703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR

only. For more information about the PAIR system, see http://pair-direct.uspto.gov.

Should you have questions on access to the Private PAIR system, contact the

Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anthony Knight
Supervisory Patent Examiner
Group 3600

cjb
9 August 2004